

# THE A STOCK

by Piers Connor

## A report of the LURS meeting at All Souls Club House on 8 January 2013

Our well known speaker presented a personal view of the popular, recently withdrawn Metropolitan Line trains. The A Stock was designed for the new electric service to Amersham which was originally part of the 1935-1940 New Works Programme. A document from Acton Works dated February 1939 showed plans for 23x8-coach compartment-stock electric trains to be reformed from the "Vickers" stock – it later became known as T Stock. There was a proposal to equip them with air-worked doors, but the start of war in September 1939 brought the scheme to a halt.

The success of the D-day landings brought hope of an end to war and a return to normality. A photograph of November 1944 showed a test build of a car shell at Acton Works that was numbered 17000. It was completed in December 1945, after the war had ended (in Europe in May and in Japan in August 1945) and it entered service in January 1946 within a conventional compartment stock train. Mounted on an old T stock under-frame and District Line type K2 bogies, it had the look of an A stock trailer body with three double-doorways but it was painted in red livery. The air doors were worked by an additional guard on the train in the adjacent coach.



The interior layout featured a side corridor with cross-bench seating and luggage racks above (*Left*). It was later modified to a slightly off-centre corridor with 3+2 seating as car number 17001 (*Below, Left*). As 17001, the car was given a mix of high and low-back seating. In June 1947 a two-door version was completed for trials as car 20000 but had more luxurious 2+2 seating (*Below, Right*).

We then moved on to a photo of a May 1950 mock-up of a driving-motor car at Acton Works, which now featured large circular windows in the door pockets of its curved sides.



A similar feature was added to 1938 Tube Stock car 10306 at this time. A centre corridor featured with 3+2 seating and luggage racks above. A Circle Line diagram was displayed across the car for no apparent reason, but it was positioned as it was to be on the production A Stock. The front end featured curved ventilator openings above the outer windows and a six-lamp marker light display.

The A Stock order was finally placed in 1959, twenty years after the original plans for the Amersham service. There were now to be 31x8-car trains in 4-car double-ended units to allow for the resumption of uncoupling, which had been abandoned on the outbreak of war. A second fleet of 27x8-car trains was subsequently ordered for the Uxbridge line, the original order being known as A60 stock and the subsequent order the A62 stock. There was no significant difference between the two, and they inter-worked from the entry of A62 stock into service. The first A60 unit arrived in Ruislip depot on 2 February 1961 and the first train entered service on 12 June 1961.

Construction was undertaken by Cravens of Sheffield, who were later acquired by Metro-Cammell. A works photograph showed the new trains alongside new British Railways Mk1 stock, which looked dated in comparison. The A Stock left Sheffield, almost as shells, for rail transfer to Ruislip depot where they were fitted with traction motors, electrical equipment, shoe-beams, lighting tubes, seating, etc., a process that took some three-weeks to complete. The trains then took a test run to North Acton on the Central Line, reversing via the trailing crossover there of the time. This was their delivery route to Neasden depot via Ealing Broadway, Acton Town and Rayners Lane, long before the Ruislip siding link was constructed.

A photo showed unit 5000 outside Neasden depot in near-new condition (*Below*). It was found that the aluminium exteriors caused dazzle as they reflected sunlight, and they were subsequently sanded. Black roofs were only applied up to 5010 from when they were painted grey. Piers showed a photo of a train at Osterley on a special working for a private party. The District Line served this branch in peak hours until October 1964. Oil tail lights were still carried at this time.



The car interiors had varnished Canadian maple wood grooved flooring, standard at the time but it soon discoloured with feet marks from passengers. The original colour scheme had grey paintwork and red trimmed grey and black moquette seating. Small hat racks were fixed to the car walls. The guard's position was more spacious than on other electric stocks, with a latched fold-down seat as well as four fold-down seats in the car end for passenger use when unoccupied by the guard. The door control panels were unusually mounted on the side walls of the car, out of sight of the guard observing along the platform. Heater controls were also provided on the panel.

The driver's cab was a big improvement on earlier trains, with a control desk and knee space below. The latch spring on the BTH master-controller was an improvement on the old Vickers type, and the EP brake was better than that on the O and P stocks. A speedometer was provided, an innovation compared with earlier trains, whose drivers had to estimate speed. However, the cab heater and window wiper were not very effective.

An A Stock was shown alongside a T Stock train during the change-over period which lasted until December 1963. The winter of 1962/63 was severe, and a train was seen out in apparent Arctic conditions north of Chorley Wood. The first overhauls commenced in 1965, and a newly refreshed train was shown.

Service uncoupling was introduced on the Watford and Amersham routes on 18 June 1962, and on the Uxbridge line on 17 June 1963. It continued outside peak periods, except for the winter seasons, until 6 December 1982. At Watford and Uxbridge it took place in the platforms, one train being split into two and the following train stabling, or vice versa. However units could sometimes prove difficult to split or to recouple, and after several attempts they would sometimes continue 'as was' until they could be changed over. Also, if the service became disrupted it was not always possible to pair up units, and a short train could remain running throughout the peak.

A photograph of a C Stock train alongside an A Stock at Harrow-on-the-Hill was a reminder of the times when C Stock was often diverted from the Circle Line to cover gaps in the Metropolitan Line service due to staff shortages. A 30% shortage of train guards led to a 50% service deficiency when allowing for cancelled trains being taken to and from depots. The C Stock was the next build of surface stock with many innovations, but was much more difficult for drivers to operate.



In June 1977, A Stock units were used to replace 1938 Tube Stock on the East London Line (Above), but were themselves displaced from there by double-ended D Stock units between April 1985 and May 1987, so that the Met's fleet could be converted for One Person Operation. This work involved removing the guards' controls from inside the passenger saloons and fitting them on the back wall of the driver's cab. An additional set of door controls was placed in front of the driver under the windscreen, which gave an uneven look to the front windows.

Other modifications included a window wiper for the offside window, missile-proof windscreen glass, push-button operated parking brakes, public-address equipment, new more powerful headlights and the usual fitting of calling-on light and train radio. During the conversion programme, trains continued to operate with guards working from the rear cab. The end of guards came with full conversion to OPO on 29 September 1986. (More details are in an article by J.P. Solan in *Underground News*, October 1986).

All units were fully reversible and interchangeable before conversion, but to save money only one cab was converted on most units, making them A-end or D-end units, and only a few double-ended units remained. Thus, the converted standard 8-car formation comprised two 4-car units, coupled with unmodified cabs in the middle and the OPO converted cabs at the outer ends. The double-ended units were needed for the Chesham shuttle service and on the East London Line, and also provided some flexibility by being available for use on either end of an 8-car train. There were 24 of these double-ended units, plus 44 A-end units and 43 D-end units. Two further double-ended units were later created by reinstating previously withdrawn units.

In 1986 a withdrawn car was converted for Sandite application to improve rail adhesion. It was given an off-white paint finish with maroon roof, the first unpainted aluminium car in the fleet to be so treated. It was inserted into a regular unit to form a 5-car train, but did not carry passengers. Routine A Stock overhaul was transferred from Acton Works to Neasden depot in August 1987, and from then until May 1988 seven units were out-shopped with maroon roofs. One was seen with the word "METROPOLITAN" across the cab front between the train number display and the headlights.

In 1984 the first A Stock suffered a serious graffiti attack, and painting the exteriors was considered as a solution to ease cleaning. In 1988 six units were painted for the East London Line. Most had white sides with dark blue passenger doors, which led to occasional false reports of trains operating with doors open. One unit had the sides painted dark blue in the upper section and off-white in the lower section, including across the doors. All had red cab ends.

Following the King's Cross station fire it was decided to fire-harden trains. At the same time interiors were to be restyled to project a fresh image. The replacement of wood ceiling panels in A Stock with aluminium revealed extensive rain leaks that the softwood panels must have always absorbed. The roofs had provision for circular ventilation fans which had never been fitted, and these were resealed. An experimental interior of 1989 showed individual seat cushions, some low and others with headrests, whilst another car showed seating closer to the style finally adopted but with an angular shaped ceiling.



Following a prototype refurbishment (*Above, seen after off-loading in Ruislip depot*), and in the experimental blue upper and white lower livery, the first production refurbished train arrived back

from Derby on 22 September 1994, and the fleet was completed on 11 February 1998. They sported the new corporate livery of off-white with a blue floor level panel, red doors and red train ends which managed to disguise the uneven front cab windows. End windows were cut into car ends as a security measure. The inter-car safety barriers were fitted a few years later.

On the technical side, an A Stock motor-bogie showed the mono-block wheels fitted in later years. The original spoked wheels had a metal tyre shrunk on. These were believed to dissipate heat better, and tyres could be replaced from time to time, but they could slip on the wheel and needed to be checked regularly. An LT113 nose-suspended DC motor was fitted to the bogie. A type 3005 motor-alternator supplied low-voltage currents on board. Two types of compressor were used, the Reavell 3HC43 and the more noisy Westinghouse DHC5A.

The first A Stock to go to scrap were cars 5170 and 6170, which were cut up by Thomas Hill at Neasden in June 1981, after being damaged in a collision there on 27 August 1975 which involved 29 vehicles. The main fleet was withdrawn through the unelectrified siding at Northwood, two cars at a time being winched back onto lorries. Their last day in service was 26 September 2012 and their farewell tour took place on 29 September 2012 by when the regular service was operated by new S stock.

In a short question session it was explained that the yellow and black striped sign in the offside cab window was a weak-field flag switch which could only be used north of Finchley Road to provide a higher top speed, but at a lower acceleration rate. The A Stock always had a sub-standard braking performance, and signalling safety precautions had to be adapted accordingly.

It appeared in the early years that the fleet size was generous for the service provided because passenger demand was falling even as it was delivered, but in later years the growth in demand required the return of defective trains to service. Concern over poor ride quality was officially blamed on track condition rather than any design fault in the trains. It was true that the A Stock had been designed tight to gauge, and it was banned from sections of the District Line. An early test run around the Circle Line returned to Ealing depot with many scratch marks on the protective panels which had been carefully mounted up to waist level around the new train for this reason.

Our speaker was thanked in the usual manner for his comprehensive presentation.

**John Hawkins**